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University of California  
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Berkeley, California

SEASONAL LABOR NEEDS FOR CALIFORNIA CROPS

BUTTE COUNTY

Progress Report No. 4

by

R. L. Adams

Preliminary -- Subject to Correction

December, 1936

Contribution from the  
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Mimeographed Report No. 53



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Seasonal Labor Needs for California Crops

Butte County

Scope of Presentation.-- The following considerations govern the presentation of this progress report:

1. The data are confined to the area indicated above.
2. The data are confined solely to crops, livestock needs being ignored.
3. The findings apply only to occasional or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.
4. Attention is concentrated upon workers required for hand tasks -- planting, thinning, weeding, hoeing, and harvesting -- without including teamsters, tractor drivers, irrigators, and shed packers of vegetables or fruits.
5. The presentation includes the so-called migratory, transient, or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.
6. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

Brief Description of the Area.-- Butte County is located in the northeastern part of the Sacramento Valley about 200 miles northeast of San Francisco. The Sacramento River forms its western boundary, separating it from Glenn County. Tehama County bounds it on the north, Plumas County on the east, and Yuba and Sutter counties on the south. The county has a total land area of 1,086,720 acres, 308,012 of which are listed as available for crop land by the United States Census of 1935. Further classification is as follows:

	<u>Acreage</u>
Crop land harvested	168,927
Crop failure	2,317
Crop land idle or fallow	50,130
Plowable pasture	86,638
Total land available for crops	308,012

Orville, located in the southern part of the county, is the most important shipping point for fruit, grain, and cattle which are raised in the surrounding foothills. In the northern part of the county, on the floor of the valley, is Chico, another important shipping center, and just east of it in the foothills is Paradise Valley which is devoted to fruit farming.

Crops, Acreages, and Production.-- The basis used in calculating occasional or seasonal need for labor, other than that furnished by farm operators and regularly employed workers, appears as table 1.

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TABLE 1

Basis for Calculating Seasonal Labor Requirements  
Butte County

Crop	Acreage*	Production*
Field crops:		
Alfalfa †	6,850	28,311 tons
Beans *	4,500	52,650 cwt.
Grain †-- barley	37,489	426,040 cwt.
oats	3,609	32,691 cwt.
wheat	39,468	328,972 cwt.
Hay †-- volunteer and small grains	9,427	12,098 tons
Hops *	360	540,000 pounds -- dry weight †
Rice *	23,318	932,720 sacks
Sorghums †	5,377	54,428 cwt.
Sugar beets *	500	6,000 tons
Seed crops:		
Sudan grass ♀	975	14,825 sacks
Vegetable seed ♀	500	--
Miscellaneous ♀	600	--
Miscellaneous melons -- for seed	3,700	--
Vegetable crops:		
Honeydew melons	400	3,000 tons
Spinach canning *	1,100	4,400 tons
Fruit and nut crops:		
Almonds	7,268	3,642 tons
Apricots ♀	118	118 tons
Apples	617	(123,400 boxes of 45 2,976 tons (pounds (200 tons culls
Cherries	125	250 tons
Figs ♀	232	348 tons
Grapes -- Concords	75	45,000 baskets of 5 pounds †
all others	572	3,432 tons (of which 175 tons were dried)
Olives	4,092	3,110 tons canning 1,196 tons not canning #
Oranges	716	10,740 boxes = 21,480 field boxes
Peaches -- clingstones	2,400	28,800 tons of which 1,680 tons were dried †.
freestones	576	5,184 tons of which 900 tons were dried †
Pears	309	1,018 tons
Plums	117	23,400 crates
Prunes	5,422	10,944 tons -- dry weight †
Walnuts	1,293	(318,300 pounds (merchantable # 383,500 pounds (65,200 pounds culls (estimated

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Table 1 continued.

3.

Crop	Acreage	Production
Nectarines ♀	54	324 tons
Pecans ♀	6	10 tons
Persimmons ♀	19	57 tons

\* Acreage and production figures from W. L. Stile, Agriculture Commissioner, unless otherwise noted.

+ Data from 1935 Census.

† Drying ratios used in this report are:

Hops -- 4 to 1	Peaches -- clingstones -- 7 to 1
Grapes -- 3 1/2 to 1	Prunes -- 2 1/2 to 1
Peaches -- freestones -- 6 to 1	

♀ Use of seasonal labor on these crops has been ignored.

¶ Figure from California Olive Association.

|| Estimate by Walnut Control Board.

Operations Requiring Seasonal Labor and Times of Need.-- Farm operations requiring the use of seasonal or occasional labor for the various crops raised in Butte County are indicated in table 2. This tabulation does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops  
Butte County

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-days
Field crops:				
Alfalfa	Mowing Raking Shocking	May -- 5/6 of acreage June -- 5/6 of acreage July -- 5/6 of acreage August -- 5/6 of acreage September -- 5/6 of acreage October -- 5/6 of acreage	{ 50	8 acres 15 acres 30 acres
Beans	Hoeing and weeding	June -- 50 per cent of acreage July -- 50 per cent of acreage	{ 100	3 acres
	Windrowing -- by hand	October 1-31 -- all of acreage	{ 100	7 acres
	Threshing -- by pick-up	October 1-31 -- all of acreage	{ 75	5 acres
Grain -- wheat	Threshing -- with combine	July 1-31 -- 75 per cent of crop August 1-31 -- 25 per cent of crop	{ 75	7 acres

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Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-days
Grain (cont.) barley	Threshing -- with combine	July 1-31 -- 85 per cent of crop August 1-31 -- 15 per cent of crop	75	6 acres
Hay -- volunteer and small grains	Mowing	May 1-31 -- all of acreage		8 acres
	Raking	May 1-31 -- all of acreage	50	16 acres
	Shocking	May 1-31 -- all of acreage		30 acres
Hops	Pruning, stringing, training, etc.	March -- 30 per cent of job April -- 30 per cent of job May -- 30 per cent of job June 1-15 -- 10 per cent of job	100	Total of 12 man-days per acre
	Picking	August 10-31 -- 2/3 of crop September 1-10 -- 1/3 of crop	100	200 pounds (green weight)
	Drying	August 10-31 -- 2/3 of crop September 1-10 -- 1/3 of crop	75	4,000 pounds (green weight)
	Baling	September 10-30 -- all of crop	60	15 bales of 190 pounds net
Rice	Seeding -- by airplane	April 25-30 -- 10 per cent of acreage May 1-31 -- 90 per cent of acreage	100	100 acres
	Binding -- 80 per cent of acreage	October 1-31 -- all of job	100	4 acres
	Shocking bundles -- 80 per cent of acreage	October 1-31 -- all of job	100	3 acres
	Threshing -- by stationary -- 80 per cent of crop	October 10-31 -- 90 per cent of job November 1-15 -- 10 per cent of job	100	50 cwt.
	Swathing -- 15 per cent of acreage	October 1-31 -- all of job	100	40 acres
	Threshing -- by pick-up combine -- 15 per cent of crop	October 1-31 -- 90 per cent of job November 1-15 -- 10 per cent of job	75	125 cwt.

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Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-days
Rice (cont.)	Harvesting -- with direct combine -- 5 per cent of crop	October 1-31 -- 90 per cent of job November 1-15 -- 10 per cent of job	75	125 cwt.
Sorghums -- for grain	Cutting heads -- by hand -- 75 per cent of acreage	September 1-30 -- 15 per cent of acreage October 1-31 -- 75 per cent of acreage November 1-20 -- 10 per cent of acreage	100	0.75 acre
	Threshing -- by stationary -- 75 per cent of crop	September 1-30 -- 10 per cent of job October 1-31 -- 50 per cent of job November 1-20 -- 40 per cent of job	75	13,000 pounds
	Threshing -- by combine -- 25 per cent of acreage	October 1-31 -- 60 per cent of job November 1-20 -- 40 per cent of job	75	5 acres
Sugar beets	Thinning	March 1-31 -- 16 per cent of acreage April 1-30 -- 66 per cent of acreage May 1-30 -- 18 per cent of acreage	100	0.5 acre
	Hoeing	April 1-30 -- all of acreage May 1-31 -- all of acreage	100	1 acre 2 acres
	Topping and loading	July 7-31 -- 10 per cent of crop August 1-31 -- 40 per cent of crop September 1-30 -- 26 per cent of crop October 1-31 -- 24 per cent of crop	100	5 tons
Seed crops:				
Melons -- honeydew, cantaloupe cucumber, squash, watermelon, etc.	Hoeing, thinning, and replanting	June 20-30 -- 75 per cent of acreage July 1-4 -- 25 per cent of acreage	100	3. acres
	Picking and piling	October 1-31 -- 75 per cent of crop November 1-15 -- 25 per cent of crop	100	0.6 acre
	Threshing	October 1-31 -- 75 per cent of crop November 1-15 -- 25 per cent of crop	100	0.66 acre

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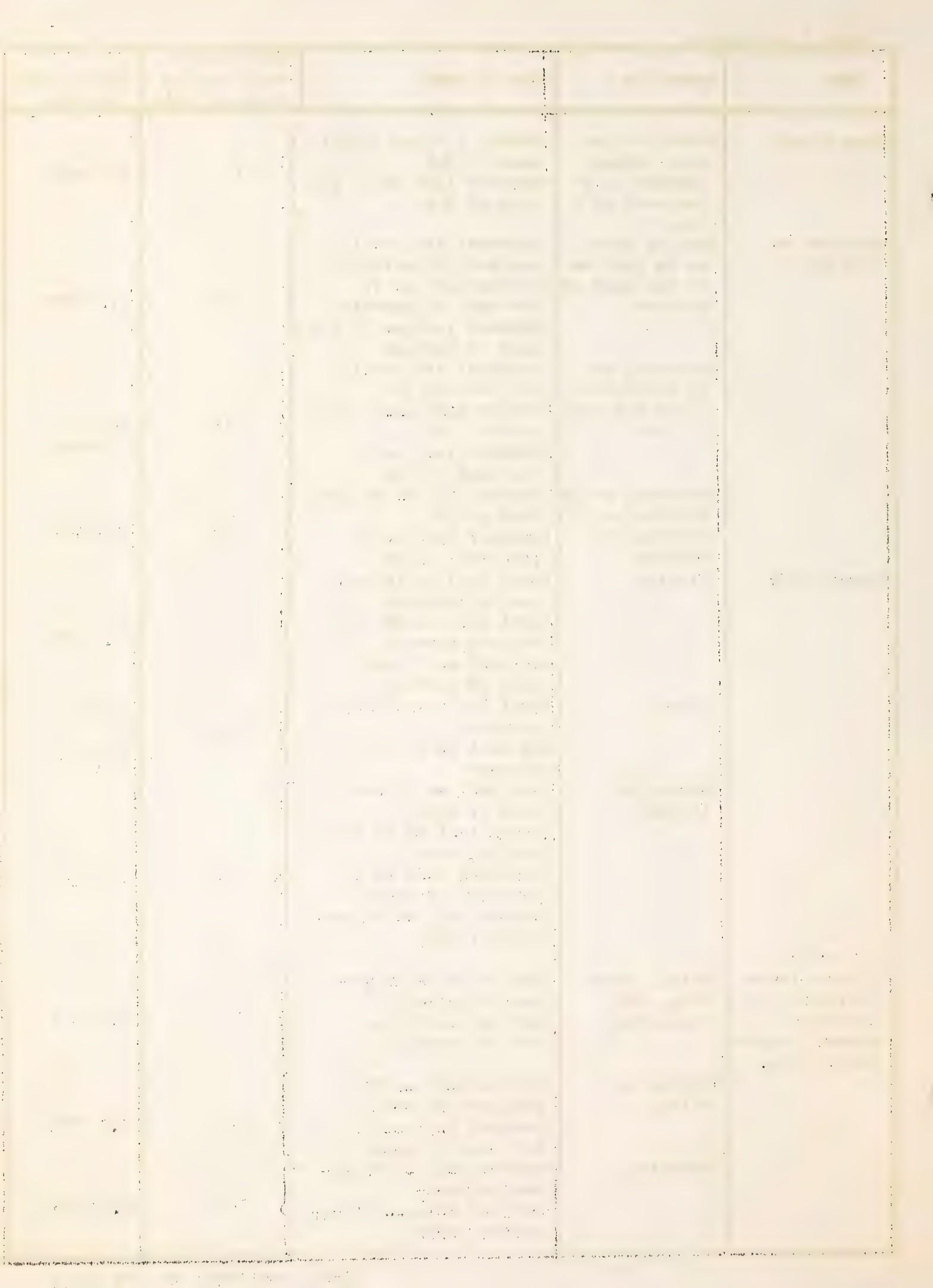


Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Vegetable crops: Honeydew melons	Picking -- for shipment	August 10-31 -- 12 per cent of crop September 1-30 -- 60 per cent of crop October 1-31 -- 28 per cent of crop November -- negligible amount	{ 100	1.5 tons
Spinach -- canning	Harvesting	March 15-31 -- 50 per cent of crop April 1-15 -- 50 per cent of crop	{ 100	1.5 tons
Fruit and nut crops: Almonds	Pruning	October -- 10 per cent of acreage November -- 30 per cent of acreage December -- 30 per cent of acreage January -- 30 per cent of acreage	{ 20	0.6 acre
	Brush disposal	October -- 10 per cent of acreage November -- 30 per cent of acreage December -- 30 per cent of acreage January -- 30 per cent of acreage	{ 20	4.5 acres
	Spraying -- 40 per cent of acreage	January -- 50 per cent of job February -- 50 per cent of job	{ 66	4.5 acres
	Knocking	August 15-31 -- 30 per cent of crop September 1-30 -- 65 per cent of crop October 1-7 -- 5 per cent of crop	{ 85	300 pounds
	Hulling -- by machine	August 15-31 -- 30 per cent of crop September -- 65 per cent of crop October 1-10 -- 5 per cent of crop	{ 80	400 pounds
Apples	Thinning	May 10-31 -- 60 per cent of acreage June 1-15 -- 40 per cent of acreage	{ 100	1/6 acre

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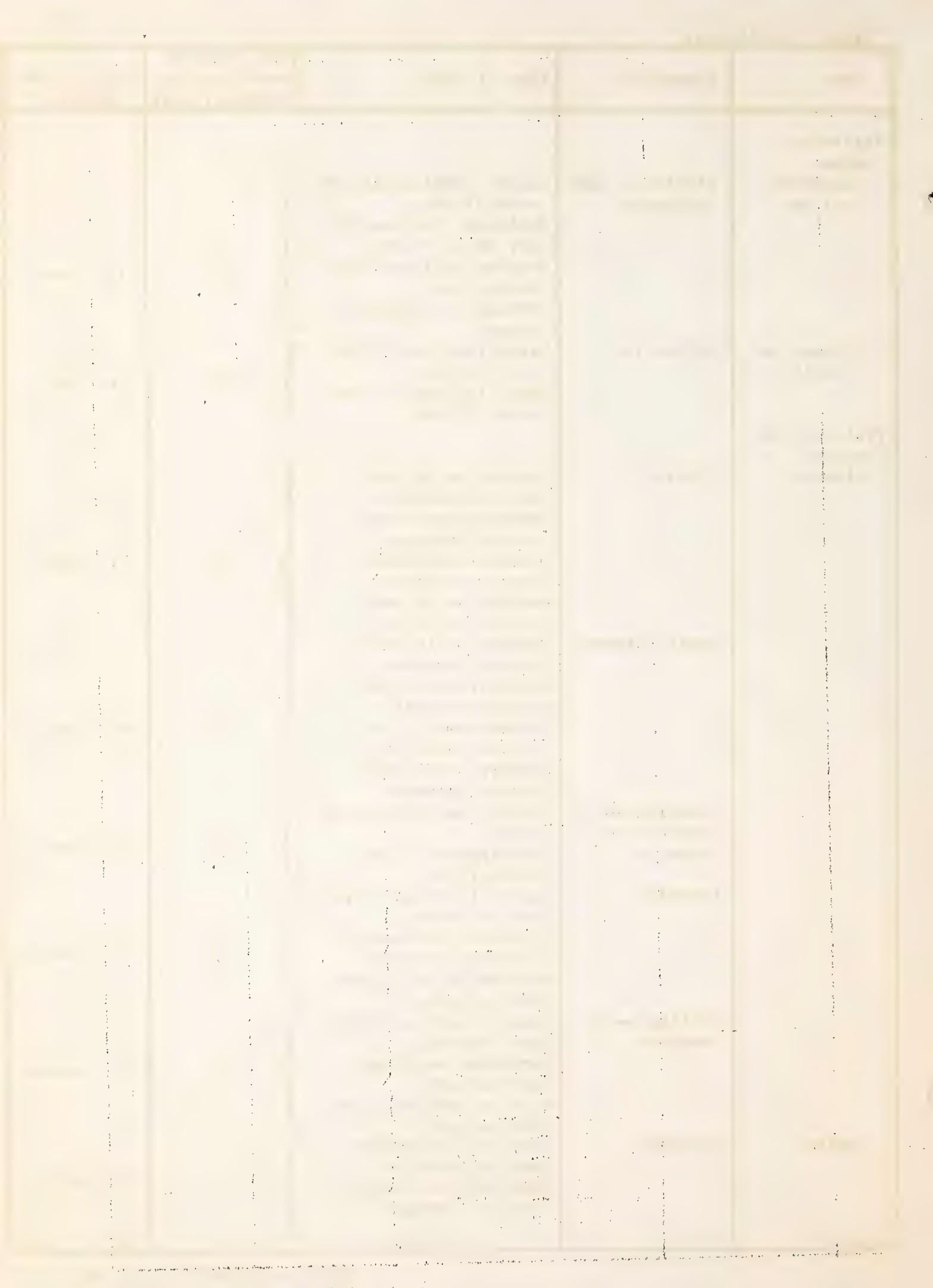


Table 2 continued.

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Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Apples (cont.)	Spraying -- 5 times	March 15-31 -- all of acreage once April -- all of acreage once May -- all of acreage twice June -- 1-30 -- all of acreage once	56	2.0 acres
	Picking	July 15-31 -- 10 per cent of crop September 10-30 -- 60 per cent of crop October 1-31 -- 40 per cent of crop	90	2,000 pounds
	Sorting and wiping -- by hand	September -- 40 per cent of crop October -- 35 per cent of crop		
		November -- 15 per cent of crop December -- 10 per cent of crop	90	37 1/2 boxes of 40 pounds
	Packing -- all on farms	September -- 40 per cent of crop October -- 35 per cent of crop		
		November -- 15 per cent of crop December -- 10 per cent of crop	90	75 boxes of 40 pounds net
Cherries	Picking	May 1-31 -- 75 per cent of crop June 1-10 -- 25 per cent of crop	100	200 pounds
Grapes	Picking -- Concord variety at Paradise other varieties	September 5-30 -- 75 per cent of crop October 1-15 -- 25 per cent of crop	100	65 baskets of 5 pounds
		September 1-30 -- all of crop	100	2,500 pounds
Olives	Picking for pickling	October -- 50 per cent of job	90	300 pounds
	Picking for oil, etc.	November -- 50 per cent of job December -- 20 per cent of job January -- 40 per cent of job February -- 40 per cent of job	90	335 pounds
Oranges	Picking	November -- 65 per cent of crop December -- 35 per cent of crop	60	50 boxes of 42 pounds

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Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Peaches -- all	Pruning	November 1-30 -- 25 per cent of acreage December 1-31 -- 25 per cent of acreage January 1-31 -- 25 per cent of acreage February 1-28 -- 25 per cent of acreage	80	0.25 acre
	Brush burning	November 1-30 -- 25 per cent of acreage December 1-31 -- 25 per cent of acreage January 1-31 -- 25 per cent of acreage February 1-28 -- 25 per cent of acreage	50	2.5 acres
	Spraying	November -- 1/2 of acreage December -- 1/2 of acreage February -- 1/2 of acreage March -- 1/2 of acreage May 1-31 -- all of acreage	75	1.25 acres
	Thinning	May 1-31	80	1/4 acre
	Picking -- clingstones	July 15-31 -- 1 per cent of crop August 1-31 -- 62 per cent of crop	80	2,000 pounds
	freestones	September 1-15 -- 37 per cent of crop July 20-31 -- 25 per cent of crop August 1-31 -- 75 per cent of crop	80	2,000 pounds
	Cutting clingstones for drying	August 1-31 -- 70 per cent of job September 1-15 -- 30 per cent of job	100	1,000 pounds
	Other dry-yard work	August 1-31 -- 70 per cent of job September 1-15 -- 30 per cent of job	100	11 1/2 man-hours per fresh ton*
	Cutting free-stones for drying	July 20-31 -- 25 per cent of job August 1-31 -- 75 per cent of job	100	1,500 pounds
	Other dry-yard work	July 20-31 -- 25 per cent of job August 1-31 -- 75 per cent of job	100	11 1/2 man-hours per fresh ton *

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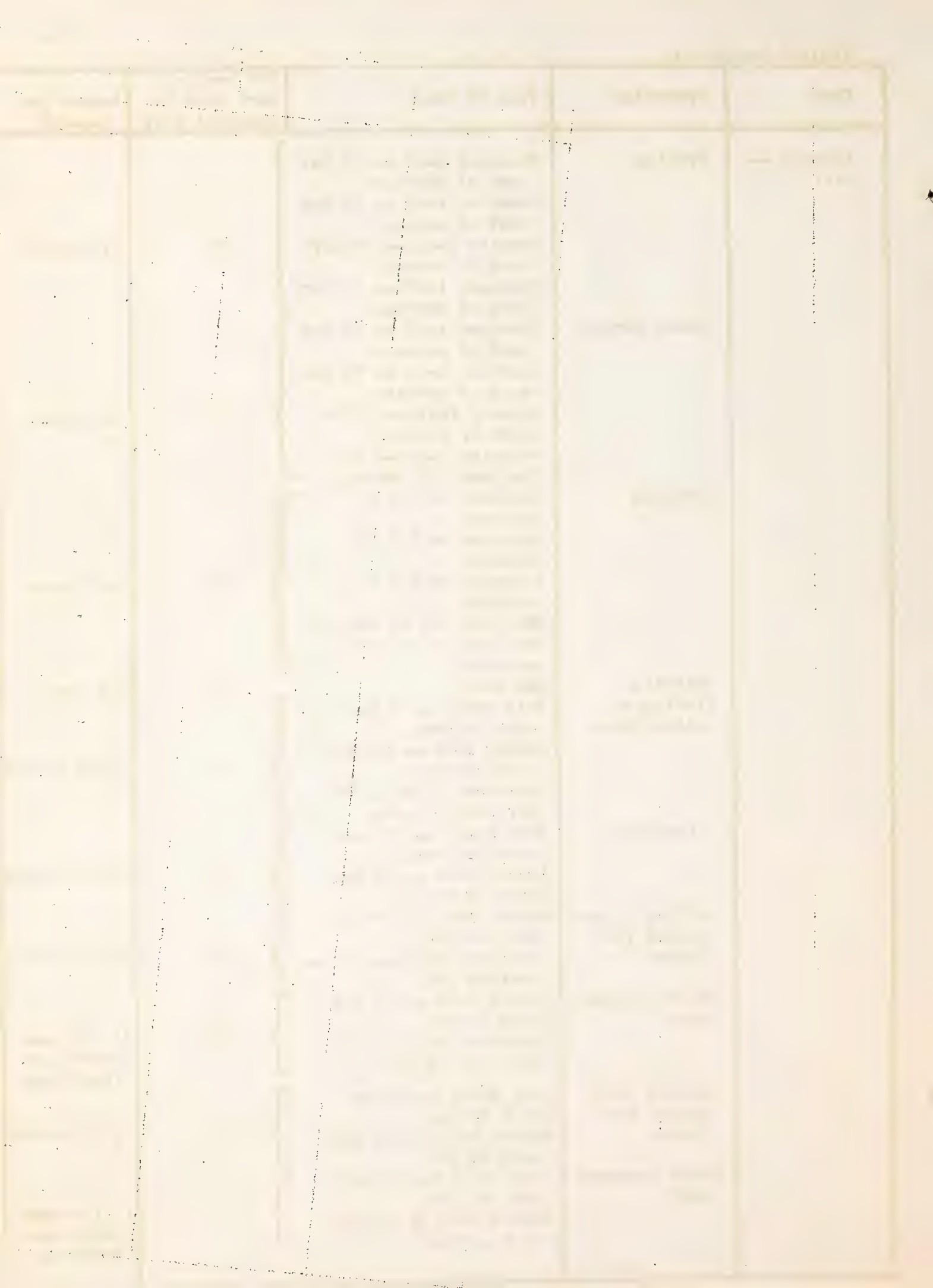


Table 2 continued

Crop	Operation	Time of need	Percent of work done by seasonal help	Output per man-day
Pears	Pruning	November -- 25 per cent of acreage December -- 25 per cent of acreage January -- 25 per cent of acreage February -- 25 per cent of acreage	80	0.2 acre
	Brush burning	November -- 25 per cent of acreage December -- 25 per cent of acreage January -- 25 per cent of acreage February -- 25 per cent of acreage	50	2.5 acres
	Picking	August 1-31 -- all of crop	100	1,500 pounds
Plums	Picking	July -- 20 per cent of crop August -- 80 per cent of crop	100	800 pounds
Prunes	Pruning -- 25 per cent of acreage	November -- 25 per cent of job December -- 25 per cent of job January -- 25 per cent of job February -- 25 per cent of job	80	0.5 acre
	Brush disposal	November -- 25 per cent of job December -- 25 per cent of job January -- 25 per cent of job February -- 25 per cent of job	50	2.5 acres
	Picking up	September 1-30 -- 60 per cent of crop October 1-15 -- 40 per cent of crop	80	1 ton (fresh weight)
	Dipping and drying -- 50 per cent by dehydrators	September 1-30 -- 60 per cent of job October 1-15 -- 40 per cent of job	80	6 man-hours per fresh ton †
	by sun dry -- 50 per cent by sun-dry	September 1-30 -- 60 per cent of job October 1-15 -- 40 per cent of job	80	8.3 man-hours per fresh ton*

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Table 2 continued.

Crop	Operation	Time of need	Per cent of work done by seasonal help	Output per man-day
Walnuts -- English	Knocking and picking up	September 24-30 -- 15 per cent of crop October 1-31 -- 75 per cent of crop November 1-15 -- 10 per cent of crop	100	200 pounds
Walnuts -- Black †				

\* From Christie, A. W. and L. C. Barnard. The principles and practice of sun-drying fruit. California Agr. Exp. Sta. Bul. 388:40-60. 1925

† From Christie, A. W., revised by P. F. Nichols. The dehydration of prunes. California Agr. Exp. Sta. Bul. 404:7. 1929.

‡ A considerable number of persons, especially in the Chico district, work during September, October, November and December picking up black walnuts for which they receive 50 to 75 cents per sack from the shelling plants.

Findings of Seasonal Labor Needs.-- Details and summaries of seasonal labor requirements of Butte County agriculture are presented as table 3. The "size of task" are figures drawn from table 1, in terms of either acreage or output in tons, crates, boxes, or whatever unit is commonly used. The "output per man-day" is an average figure for the entire acreage or output figured in crates, hampers, boxes, or other units as indicated in the table. If the work is of a nature that requires a crew, different members of which perform different tasks, then the average shown is per man based on the entire crew. Length of day is 9 hours, November to February; 10 hours, March to October, unless otherwise stated. Wide variations in output occur between farm and farm, field and field, and season and season, because of differences in soil types, climatic conditions, weeds, yields, and other factors influencing the amount of work that a laborer can perform in a given day. Moreover, the basis of output is a mature, experienced male worker without reference to use of women, children, and more or less inexperienced help that is sometimes used in connection with certain of the tasks requiring use of seasonal workers. The column headed "available days" reflects (a) limitations set from the period within which the work must be performed because of the nature of the task, such as transplanting, thinning, weeding, and cutting, and (b) available days as determined by weather conditions, inclement weather reducing the number of days when a required task can be performed. The "required number of individuals" is given in terms of workers as noted above in connection with "output per man-day."

It is probable that the estimated number of workers required, as recorded in table 3, will often be too low, for the reason that "peaks" frequently occur, during which an unusually large proportion of the job is done in a very short period. This would naturally require a much greater number of workers than when the work is spread over a longer period, even though the total amount of labor (in man-days) remains the same.

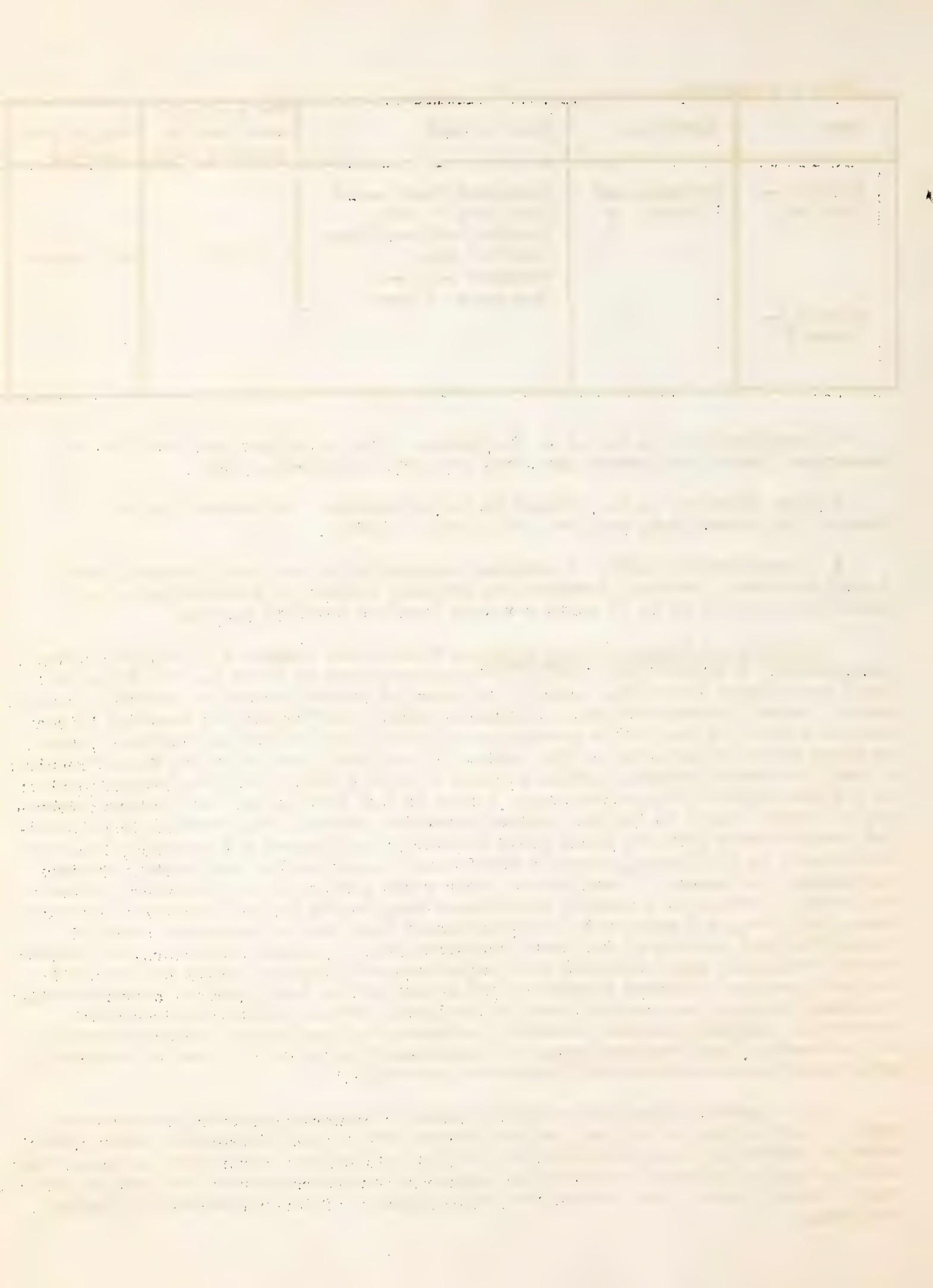


TABLE 3

## Seasonal Labor Needs -- Butte County -- by Months and Tasks

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
January	Almonds: Pruning	0.6 acre		727	16	46
	Brush disposal	4.5 acres		97	16	7
	Spraying	4.5 acres		214	16	14
	Olives: Picking for oil, etc.	4.5 acres		2,571	16	131
	Peaches, all: Pruning	335 pounds		2,380	16	149
	Brush burning	0.25 acre		149	16	10
	Pears: Pruning	2.5 acres		310	16	20
	Brush burning	0.2 acre		16	16	1
	Prunes: Pruning	2.5 acres		2,168	16	136
	Brush disposal	0.5 acre		272	16	17
February	Totals	2.5 acres		8,904	16	557 man-months†
	Almonds: Spraying	4.5 acres		214	18	12
	Olives: Picking for oil, etc.	335 pounds		2,571	18	143
	Peaches, all: Pruning	0.25 acre		2,380	18	133
	Brush burning	2.5 acres		149	18	9
	Spraying	1.25 acres		893	18	50
	Pears: Pruning	0.2 acre		310	18	18
	Brush burning	2.5 acres		16	18	1
	Prunes: Pruning	0.5 acre		2,168	18	121
	Brush disposal	2.5 acres		272	18	16
March	Totals			8,973	18	499 man-months
	Hops: Pruning, stringing, training, etc.	§		1,296	19	69
	Sugar beets: Thinning	0.5 acre		160	19	9
	Spinach, canning: Harvesting	1.5 tons		1,467	10	147 (March 15-31)
	Apples: Spraying -- one time	2.0 acres		204	10	21 (March 15-31)
	Peaches, all: Spraying	1.25 acres		893	19	47
	Totals			4,020	19	212 man-months
	Hops: Pruning, stringing, training, etc.	§		1,296	20	65
	Rice: Seeding -- by airplane	100 acres		24	8 (April 25-30)	

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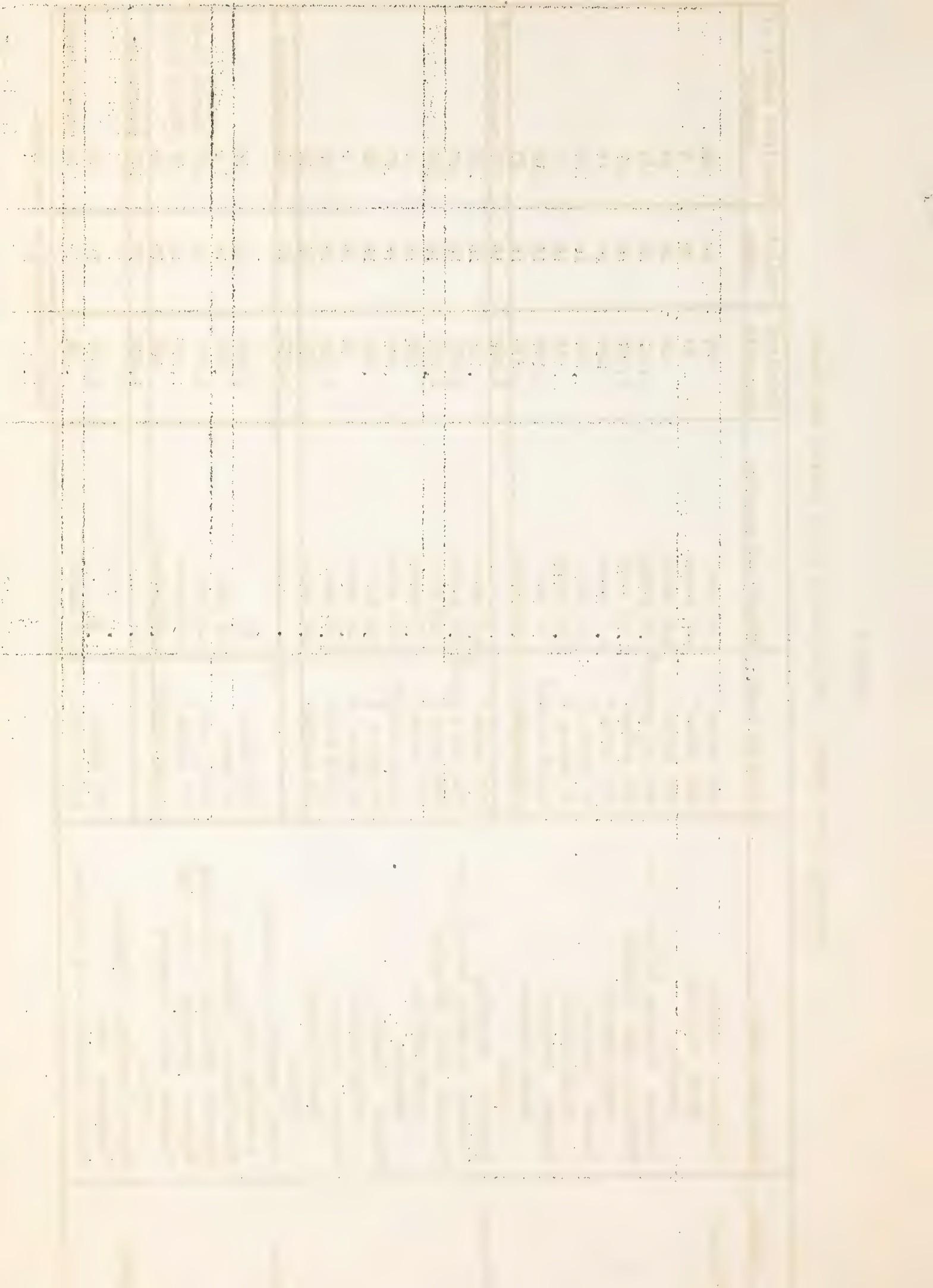


Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
April	Sugar beets: Thinning	330 acres	0.5 acre	660	20	33
	Hoeing	500 acres	1.0 acre	500	20	25
	Spinach, canning:	2,200 tons	1.5 tons	1,467	10	147 (April 1-15)
	Apples: Spraying -- one time	407 acres†	2.0 acres	204	20	11
	Totals			4,151	20	208 man-months
	Alfalfa: Mowing	2,854 acres†	8.0 acres	357	23	16
	Raking	2,854 acres†	15.0 acres	191	23	9
	Shock ing	2,854 acres†	30.0 acres	96	23	5
	Hay -- volunteer and small grains: Mowing	4,714 acres†	8.0 acres	590	23	26
	Raking	4,714 acres†	16.0 acres	295	23	13
	Shock ing	4,714 acres†	30.0 acres	158	23	7
May	Hops: Pruning, stringing, training, etc.	360 acres	§	1,296	23	57
	Rice: Seeding -- by airplane	20,986 acres	100 acres	210	23	10
	Sugar beets: Thinning	90 acres	0.5 acre	180	23	8
	Hoeing -- second time	500 acres	2.0 acres	250	23	11
	Apples: Thinning	370 acres	0.17 acre	2,177	16	137 (May 10-31)
	Spraying -- two times	814 acres†	2.0 acres	407	23	18
	Cherries: Picking	188 tons	0.1 ton	1,880	23	82
	Peaches, all: Spraying	2,232 acres†	1.25 acres	1,786	23	78
	Thinning	2,381 acres†	0.25 acre	9,524	23	415
	Totals			19,397	23	844 man-months
June	Alfalfa: Mowing	2,854 acres†	8.0 acres	357	25	15
	Raking	2,854 acres†	15.0 acres	191	25	8
	Shock ing	2,854 acres†	30.0 acres	96	25	4
	Beans: Hoeing and weeding	2,250 acres	3.0 acres	750	25	30
	Hops: Pruning, stringing, training, etc.	360 acres	§	432	12	36 (June 1-15)
	Seed crops -- melons: Hoeing					
	thinning, and replanting	2,775 acres	3.0 acres	925	8	144 (June 20-30)
	Apples: Thinning	247 acres	0.17 acre	1,453	12	122 (June 1-15)
	Spraying -- one time	407 acres	2.0 acres	204	25	9
	Cherries: Picking	62 tons	0.1 ton	620	8	78 (June 1-10)
	Totals			5,028	25	202 man-months

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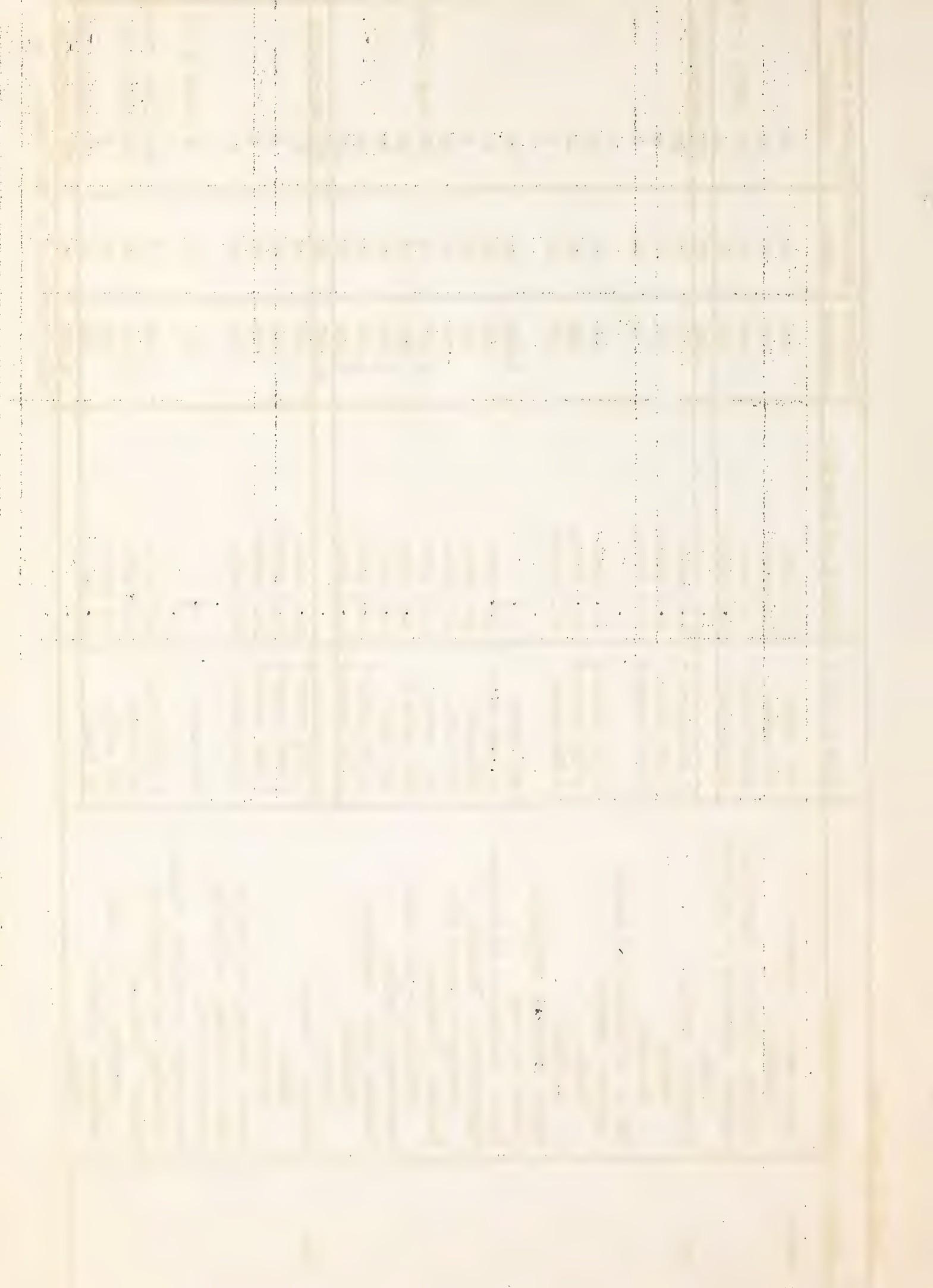


Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
July	Alfalfa: Mowing Raking Shocking Beans: Hoeing and weeding Grain -- wheat: Threshing with combine Barley: Threshing with combine Sugar beets: Topping and loading 600 tons Seed crops -- melons, etc.: Hoeing, thinning, and replanting Apples: Picking Peaches -- clingstones: Picking freestones: Picking freestones: Cutting for drying freestones: Other dry-yard work Plums: Picking Totals	2,854 acres † 2,854 acres † 2,854 acres † 2,250 acres 22,201 acres † 23,899 acres † 5.0 tons 925 acres 268 tons † 230 tons † 1,037 tons † 225 tons 225 tons 4,680 crates	8.0 acres 15.0 acres 30.0 acres 3.0 acres 7.0 acres 6.0 acres 5.0 tons 3.0 acres 1.0 ton 1.0 ton 1.0 ton 1,500 pounds 4 † 28.5 crates H	357 191 96 750 3,172 3,984 120 309 268 230 1,037 300 259 165 357 191 96 11,238 26	26 26 26 26 26 26 20 3 13 13 9 9 9 26	14 8 4 29 122 154 6 (July 7-31) 103 (July 1-4) 21 (July 15-31) 18 (July 15-31) 116 (July 20-31) 34 (July 20-31) 29 (July 20-31) 7 14 8 4 41 26 18 18 26 18
August	Alfalfa: Mowing Raking Shocking Grain -- wheat: Threshing with combine Barley: Threshing with combine Hops: Picking Drying Sugar beets: Topping and loading 2,400 tons Honeydew melons: Picking for shipment	4,218 acres † 1,440,000 pounds ** 1,080,000 pounds ** † 360 tons	6.0 acres 200 pounds ** 400 pounds ** 5.0 tons 1.5 tons	703 7,200 2,700 480 240	26 18 18 26 18	28 400 (August 10-31) 150 (August 10-31) 19 14 (August 10-31)

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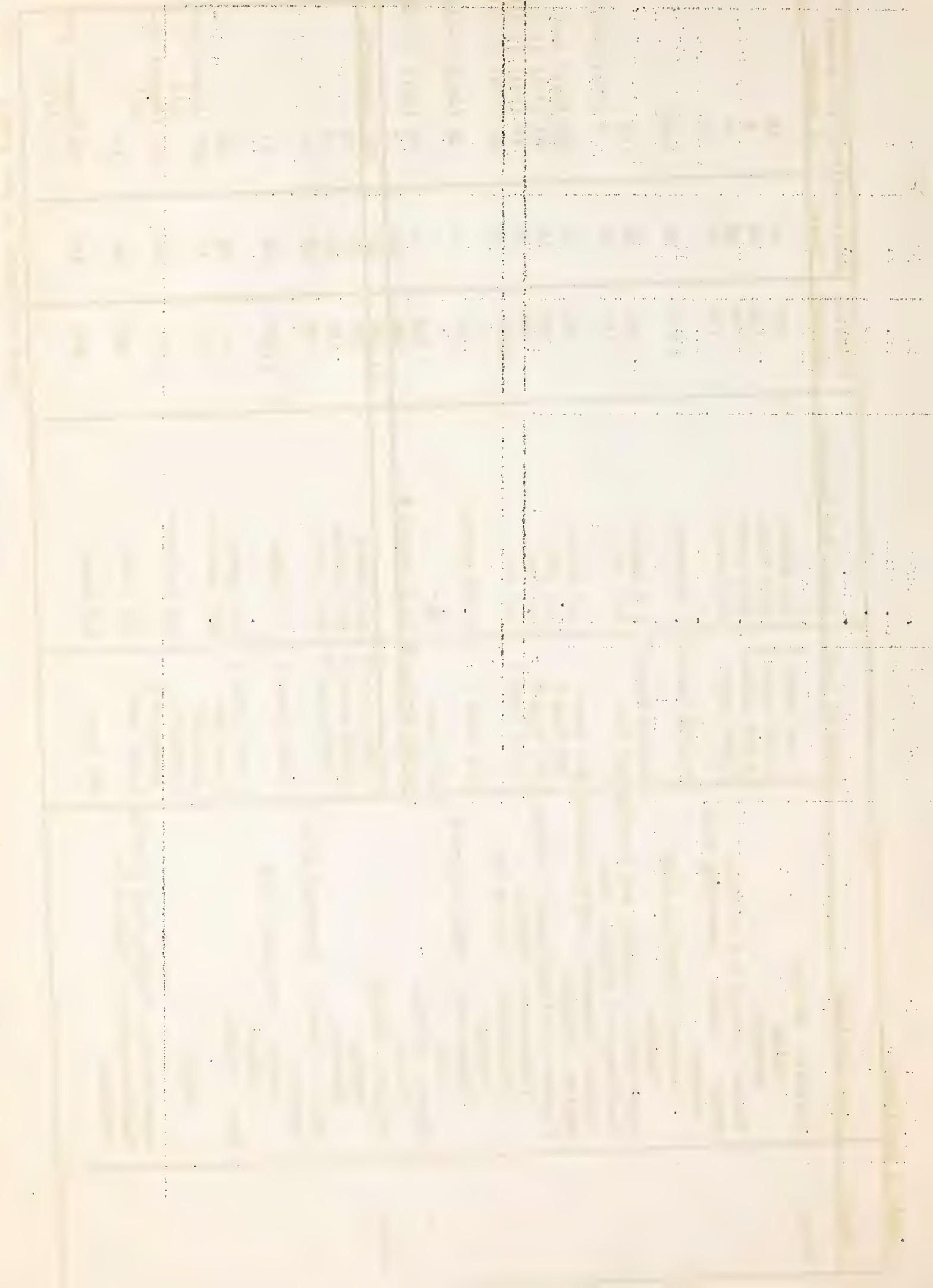


Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-day	Available days	Required number of workers*
August (cont.)	Almonds: Knocking	929 tons †	300 pounds	6,194	13	477 (August 15-31)
	Hulling -- by machine	874 tons †	400 pounds	4,370	13	337 (August 15-31)
	Peaches -- clingstones: Picking	13,285 tons †	1.0 ton	13,285	26	511
	freestones: Picking	3,110 tons †	1.0 ton	3,110	26	120
	clingstones: Cutting for drying	1,176 tons	1,000 pounds	2,352	26	91
	Other dry-yard work	1,176 tons	†	1,352	26	52
	freestones: Cutting for drying	675 tons	1,500 pounds	900	26	35
	Other dry-yard work	675 tons	†	776	26	30
	Pears: Picking	1,018 tons	1,500 pounds	1,358	26	53
	Plums: Picking	18,720 crates †	28.5 crates †	657	26	26
	Totals			47,379	26	1,823 man-months
September	Alfalfa: Mowing	2,854 acres †	8.0 acres	357	25	15
	Raking	2,854 acres †	15.0 acres	191	25	8
	Shocking	2,854 acres †	30.0 acres	96	25	4
	Hops: Picking	720,000 pounds **	200 pounds **	3,600	8	450 (September 1-10)
	Drying	540,000 pounds ** ††	400 pounds **	1,350	8	169 (September 1-10)
	Baling	324,000 pounds ††	2,850 pounds ††	114	17	7 (September 10-30)
	Sorghums -- for grain: Cutting heads by hand	605 acres	0.75 acre	807	25	53
	Threshing -- by stationary	3,062 cwt. †	130 cwt.	24	25	1
	Sugar beets: Topping and loading honeydew melons: Picking for shipment	1,560 tons	5.0 tons	312	25	13
	Almonds: Knocking	1,800 tons	1.5 tons	1,200	25	48
	Hulling -- by machine	2,012 tons †	300 pounds	13,414	25	537
		1,894 tons †	400 pounds	9,470	25	379

Table 3 continued.

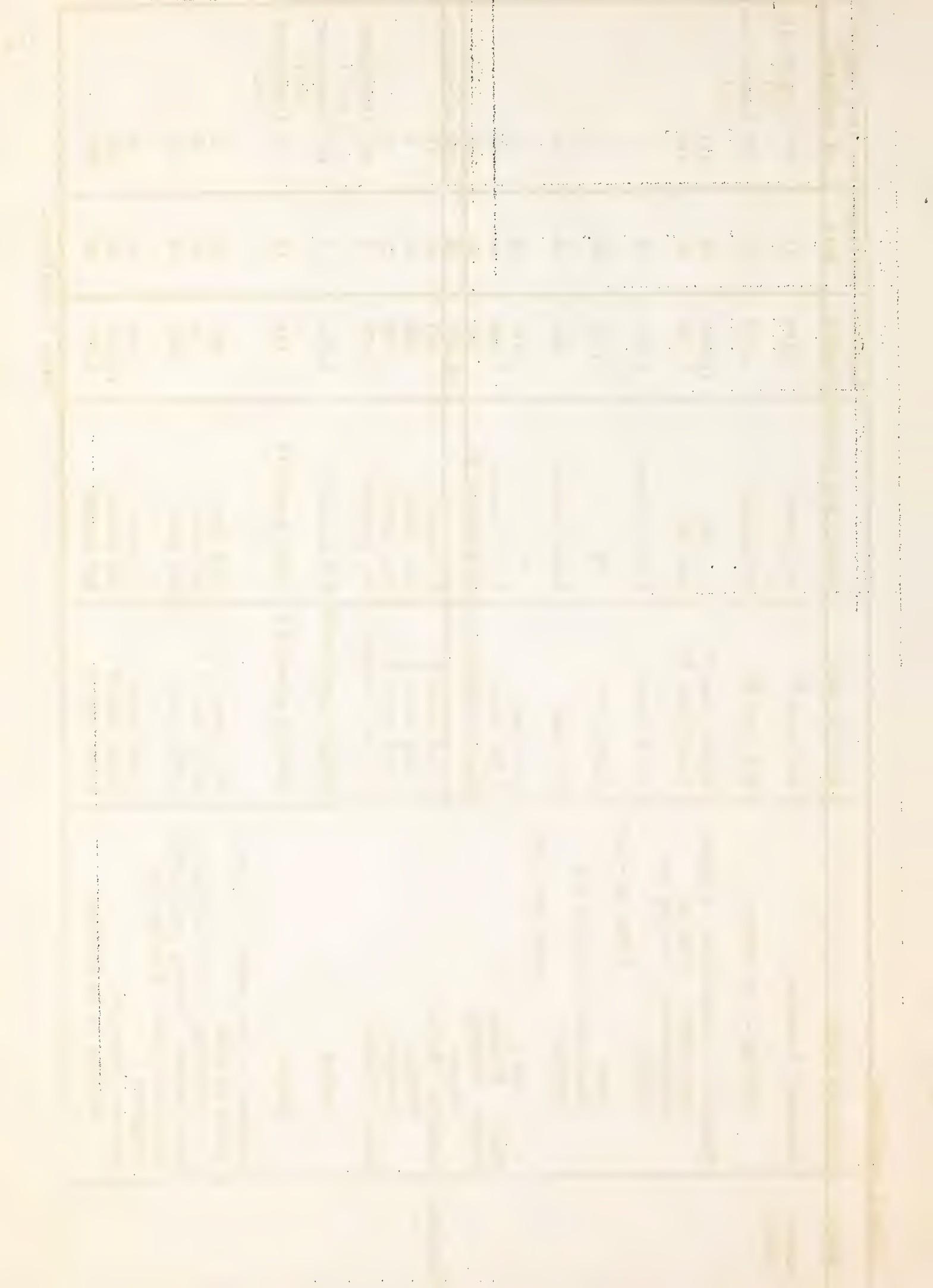


Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
September (cont.)	Apples: Picking	1,607 tons †	1.0 ton	1,607	17	95 (September 10-30)
	Sorting and wiping -- by hand	59,520 boxes ‡	375 boxes ‡	1,588	25	64
	Packing	59,520 boxes ‡	75. boxes ‡	794	25	32
	Grapes -- Concord: Picking	37,750 baskets §	65. baskets §	581	21	28 (September 5-30)
	Other varieties: Picking					
	Peaches -- clingstones: Picking	3,422 tons	2.25 tons	1,521	25	C1
		8,525 tons †	1.0 ton	8,525	13	656 (September 1-15)
	Cutting for drying					
		504 tons	1,000 pounds	1,008	13	78 (September 1-15)
	Other dry-yard work					
		504 tons	†	580	13	45 (September 1-15)
	Prunes: Picking up	13,133 tons †	1.0 ton	13,133	25	526
	Dipping and drying -- by dehydrator	6,567 tons †	†	3,940	25	158
	Dipping and drying -- by sun	5,566 tons †	†	5,450	25	218
	Walnuts: Knocking and picking up	57,525 pounds	200 pounds	288	5	58 (September 24-30)
	Totals			69,950	25	2,798 man-months
October	Alfalfa: Mowing	2,854 acres †	8.0 acres	357	22	17
	Raking	2,854 acres †	15.0 acres	191	22	9
	Shocking	2,854 acres †	30.0 acres	96	22	5
	Beans: Windrowing -- by hand	4,500 acres	7.0 acres	643	22	30
	Threshing -- by pick-up	3,375 acres †	5.0 acres	675	22	31
	Rice: Binding	18,654 acres	4.0 acres	4,664	22	212
	Shockling bundles	18,654 acres	3.0 acres	6,218	22	283
	Threshing -- by stationary	671,558 cwt.	50. cwt.	13,432	15	896 (October 10-31)
	Swathing	3,498 acres	40. acres	88	22	4
	Threshing -- by pick-up combine	94,438 cwt. †	125 cwt.	756	22	35
	Harvesting -- with direct combine	31,479 cwt. †	125 cwt.	252	22	12
	Sorghum -- for grain: Cutting heads -- by hand	0.75 acre	4,035	22	134	
	Threshing -- by stationary	130 cwt.	118	22	6	
	Threshing -- by combine	5.0 acres †	122	22	6	

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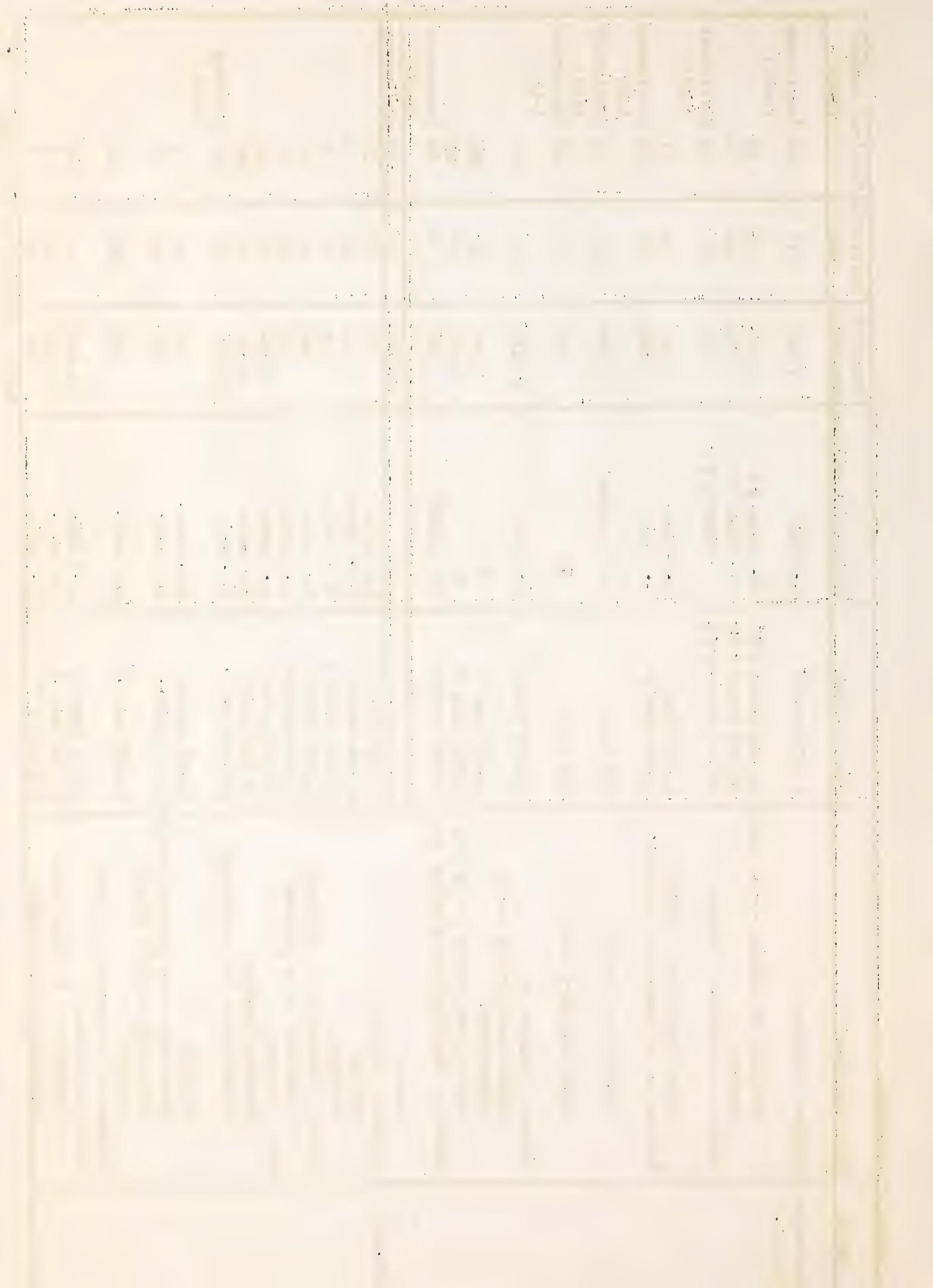


Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
October (cont.)	Sugar beets: Topping and loading Seed crops -- melons, etc.: Pick- ing and piling Threshing	1,440 tons 2,775 acres 2,775 acres	5.0 acres 0.6 acre 0.66 acre	288 4,625 4,205	22 22 22	14 211 192
Honeydew melons: Picking for shipment	840 tons	1.5 tons	560	22	26	
Almonds: Pruning Brush disposal Knocking	146 acres † 146 acres † 155 tons †	0.6 acre 4.5 acres 300 pounds	244 33 1,034	22 22 5	12 2 207 (October 1-7)	
Hulling -- by machine	146 tons †	400 pounds	730	6	122 (October 1-10)	
Apples: Picking Sorting and wiping -- by hand Packing	1,071 tons † 52,080 boxes † ‡ 52,080 boxes † ‡	1.0 ton 37.5 boxes † ‡ 75 boxes † ‡	1,071 1,389 695	22 22 22	49 64 32	
Grapes -- Concord: Picking	11,250 baskets §§	65. baskets §§	174	11	16 (October 1-15)	
Olives: Picking for pickling Prunes: Picking up	1,400 tons † 8,755 tons †	300 pounds 1.0 ton	9,334 8,755	22 11	425 796 (October 1-15)	
Dipping and drying -- by dehydrator	4,378 tons †	†	2,627	11	239 (October 1-15)	
Dipping and drying -- by sun	4,377 tons †	†	3,633	11	331 (October 1-15)	
Walnuts: Knocking and picking up	287,625 pounds	200 pounds	1,439	22	66	
Totals			72,483	22	3,295 man-months	
Rice: Threshing -- by stationary Threshing -- by pick-up combine	74,618 cwt. 10,493 cwt. †	50. cwt.	1,493	19	79	
Harvesting -- with direct combine	125. cwt.	84	9	10 (November 1-15)		
	3,498 cwt.	28	9	4 (November 1-15)		

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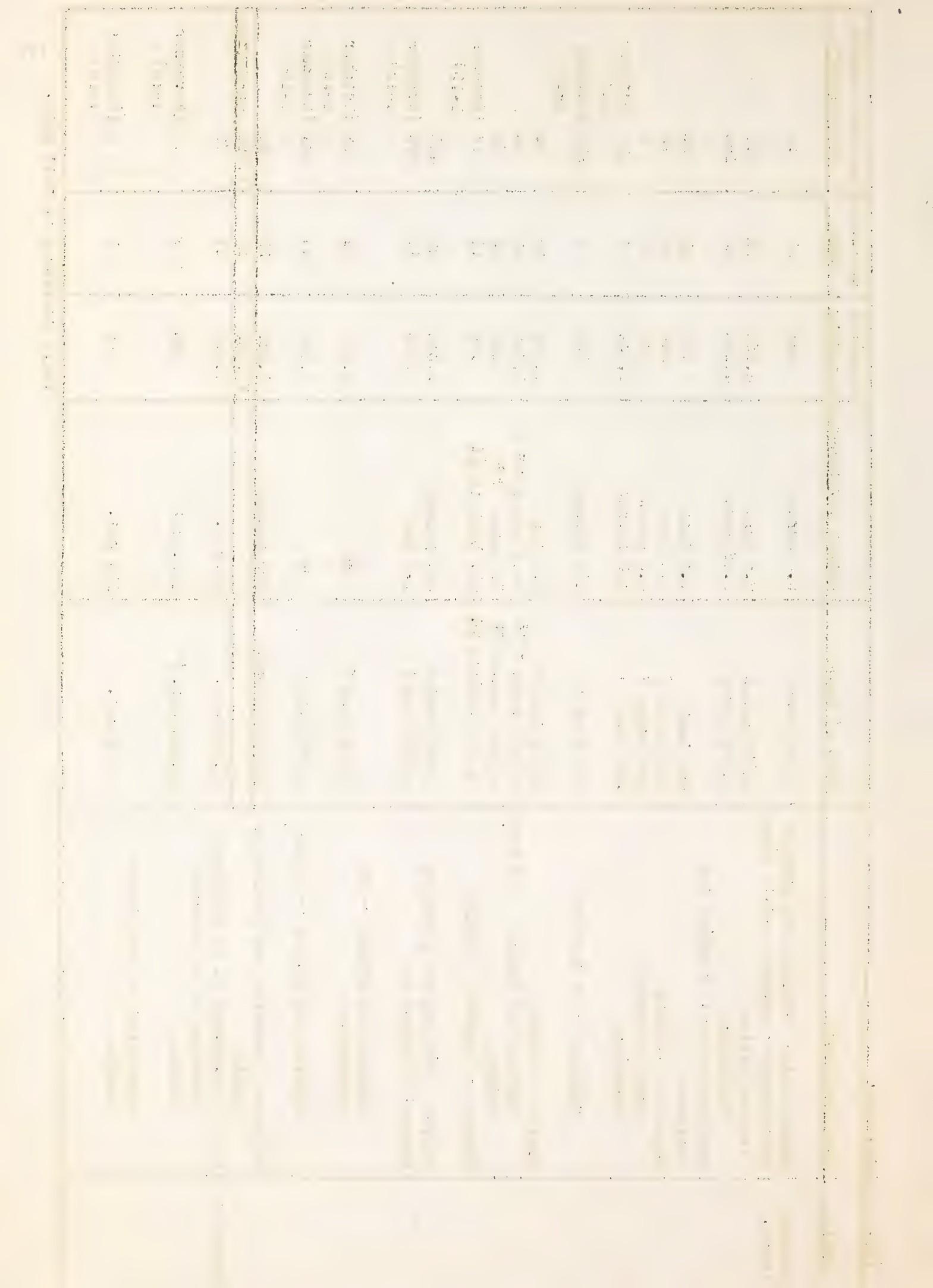


Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
November (cont.)	Sorghums -- for grain: Cutting heads -- by hand	403 acres	0.75 acre	538	13	42 (November 1-20)
	Threshing -- by stationary	12,246 cwt. †	130 cwt.	95	13	8 (November 1-20)
	Threshing -- by combine	406 acres †	5.0 acres	82	13	7 (November 1-20)
	Seed crops -- melons, etc.:					
	Picking and piling	925 acres	0.6 acre	1,542	9	172 (November 1-15)
	Threshing	925 acres	0.66 acre	1,402	9	156 (November 1-15)
	Almonds: Pruning	436 acres †	0.6 acre	727	19	39
	Brush disposal	436 acres †	4.5 acres	97	19	6
	Apples: Sorting and wiping -- by hand	22,320 boxes † ‡	37.5 boxes ‡ ‡	596	19	32
	Packing	22,320 boxes † ‡	75 boxes ‡ ‡	298	19	16
	Olives: Picking for pickling	1,399 tons †	300 pounds	9,327	19	491
	Oranges: Picking	8,377 boxes † ‡ ‡	50 boxes ‡ ‡	168	19	9
	Peaches -- all: Pruning	596 acres †	0.25 acre	2,384	19	126
	Brush burning	372 acres †	2.5 acres	149	19	8
	Spraying	1,116 acres †	1.25 acres	893	19	47
	Pears: Pruning	62 acres †	0.2 acre	310	19	17
	Brush burning	39 acres †	2.5 acres	16	19	1
	Prunes: Pruning	1,085 acres †	0.5 acre	2,170	19	115
	Brush disposal	678 acres †	2.5 acres	272	19	15
	Walnuts: Knocking and picking	38,350 pounds	200 pounds	192	9	22 (November 1-15)
	Totals			22,863	19	1,204 man-months
December	Almonds: Pruning	436 acres †	0.6 acre	727	18	41
	Brush disposal	436 acres †	4.5 acres	97	18	6
	Apples: Sorting and wiping -- by hand	14,880 boxes † ‡	37.5 boxes ‡ ‡	397	18	23
	Packing	14,880 boxes † ‡	75 boxes ‡ ‡	199	18	12

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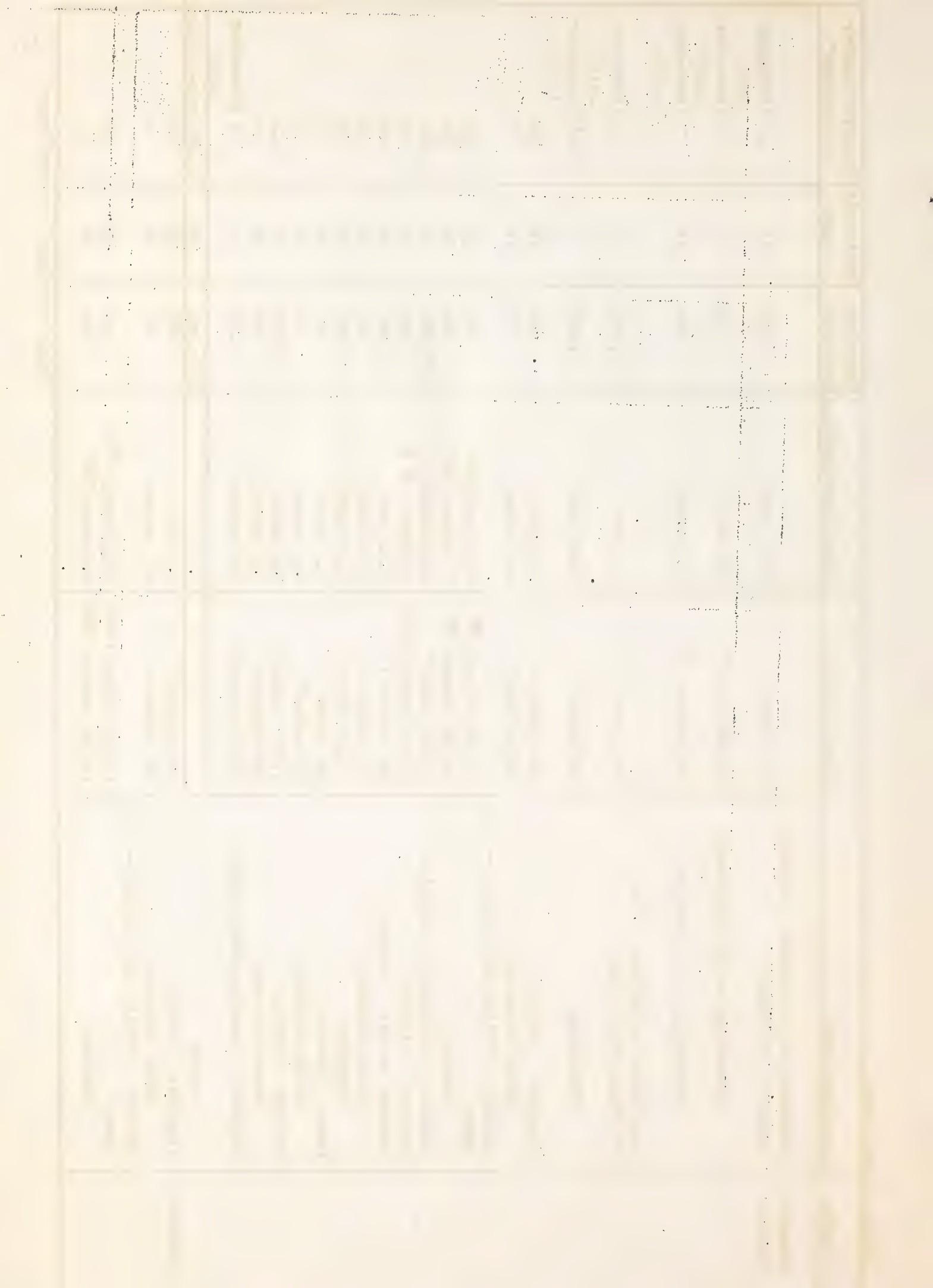


Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
December (cont.)	Olives: Picking for oil, etc.	430,000 pounds †	335 pounds	1,284	18	72
	Oranges: Picking	4,511 boxes	50 boxes ‡	91	18	6
	Peaches -- all: Pruning	595 acres †	0.25 acre	2,380	18	133
	Brush burning	372 acres †	2.5 acres	149	18	9
	Spraying	1,116 acres †	1.25 acres	893	18	50
	Pears: Pruning	62 acres †	0.2 acre	310	18	18
	Brush burning	39 acres †	2.5 acres	16	18	1
	Prunes: Pruning	1,084 acres †	0.5 acre	2,168	18	121
	Brush burning	678 acres †	2.5 acres	272	18	16
	Totals			8,983	18	500 man-months

\* On a monthly basis unless otherwise noted.

† Estimated portion of the job done by seasonal workers.

‡ It should be noted this figure, rather than representing the number of workers required, represents the number of men-months of labor required and is derived by dividing the total number of man-days of labor by the number of days available for work during the month.

§ Hop pruning, stringing, and training estimated to require a total of 12 man-days per acre, 30 per cent each month in March, April, and May, and 10 per cent in June.

¶ Dry-yard labor, other than cutting, estimated to be as follows:

Peaches -- 11 1/2 man-hours per fresh ton.  
Prunes, with dehydrator -- 6 man-hours per fresh ton.  
Prunes, sun-drying -- 8.3 hours per fresh ton.

|| Twenty-eight pounds per crate.

\*\* Green weight.

†† Dry weight.

‡‡ Boxes of 40 pounds net.

§§ Baskets of 5 pounds net.

¶¶ Boxes of 42 pounds net, field run.

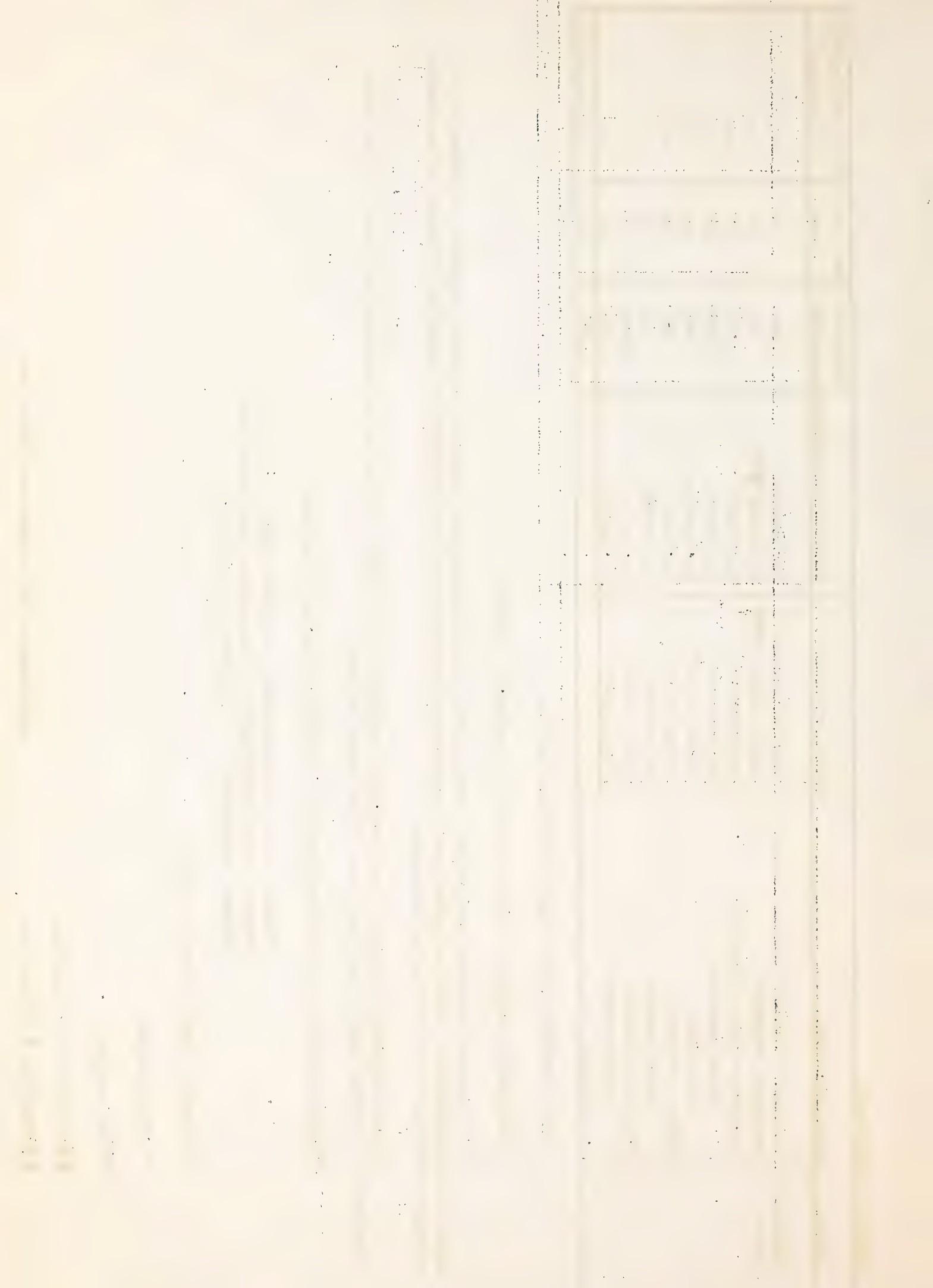
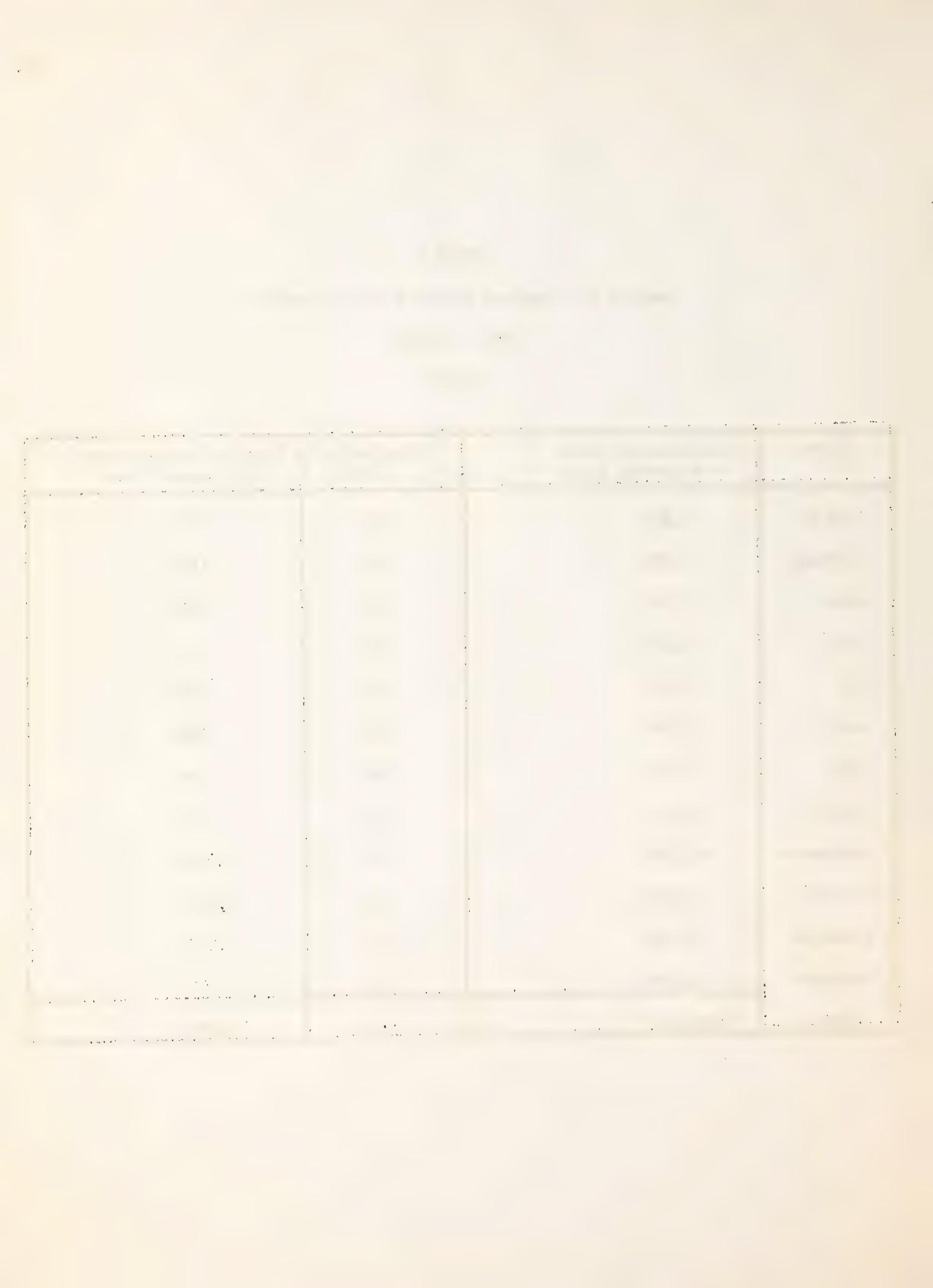


TABLE 4  
 Summary of Seasonal Labor Needs by Months  
 Butte County  
 1935

Month	Required man-days of seasonal labor	Available days	Required man-months of seasonal labor
January	8,904	16	557
February	8,973	18	499
March	4,020	19	212
April	4,151	20	208
May	19,397	23	844
June	5,028	25	202
July	11,238	26	433
August	47,379	26	1,823
September	69,950	25	2,798
October	72,483	22	3,295
November	22,863	19	1,204
December	8,983	18	500
Total	283,369	--	12,575



## Notes

Notes on Table 2.--Data concerning "time of need" as shown in this table break down required seasonal labor into the period in which the work is performed in order to permit a subsequent determination of labor needs by months (table 3). Some operations are performed only to a limited extent with seasonal labor. For instance, only 75 per cent of the work in harvesting wheat and barley is done by seasonal workers. When a job extends over several different months, the proportionate amount for each month is shown.

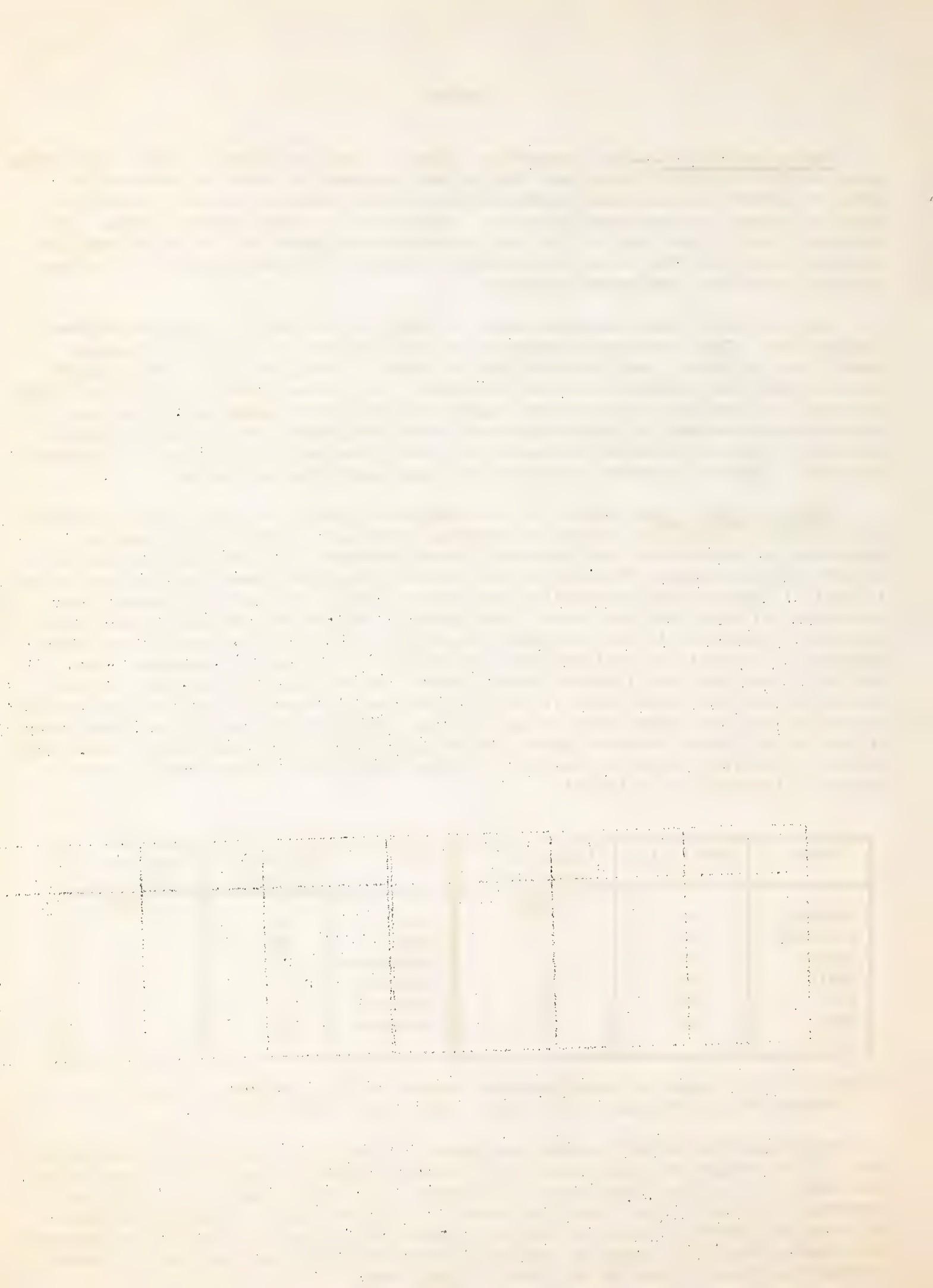
The amount of work done each month is based on the cropping system followed during 1935. The allotting of amounts of work is based on findings concerning local farm practices, and required time to "make" a crop resulting from inquiry of producers, and records of carlot shipments, the latter proving helpful in fixing dates of planting and of subsequent tasks involved in producing certain crops. Proportionate amounts of output harvested each month were determined from data of local practices with respect to harvesting, and from carlot shipments of perishable products. Records of truck shipments were also used when available.

Notes on Table 3.--Table 3 is the condensed summary of labor needs as worked out for Butte County as a result of findings pertinent to 1935. The data are presented by months with the tasks which were performed in each month indicated by both crop and task. The size of the job was calculated from the data appearing in table 1 (acreage and production) and table 2 (task, time of performance, and percentage of work pertinent to a given month). The output per man-day was calculated as indicated in the foreword presenting table 3. The number of required man-days is a result of dividing the size of task by output per man-day. The available days for the different tasks involve two variables. The first is the number of days when field work is possible because of favorable weather conditions. The basis for this column was determined from a study of the monthly weather charts of the United States Weather Bureau for the years 1933, 1934, and 1935. These data indicated available days per month as follows (based on a 26-day working month without allowance for holidays):

Month	Available days	Length of work day	Month	Available days	Length of work day
January	16	9	July	26	10
February	18	9	August	26	10
March	19	10	September	25	10
April	20	10	October	22	10
May	23	10	November	19	9
June	25	10	December	18	9

Source of data: Based on precipitation records of Chico station of the United States Weather Bureau for the years 1933, 1934, and 1935.

The second factor influencing the number of available days was the size of the job. If the output was only a few cars, then the number of days was limited to the time needed to get out those cars efficiently. If a field operation had to be performed in a period less than the number of available days in the month, then the specific number of days was noted. These restrictions are shown in parentheses. For example, in July picking of apples was limited to the last half of the month, picking freestone peaches to the last 10 days, etc.



The totals of table 3 show the total required man-days of needed seasonal labor, the available days for field work during the month, and the necessary number of men (as defined in the opening paragraph of table 3) required on a monthly basis to care for the tasks ordinarily performed by seasonal workers.

In an area such as Butte County, involving a variety of annual crops, the findings as set forth in this report are bound to fluctuate materially from year to year, because of the market outlook upon what and how much acreage is planted, and when it is planted; because of variable seasonal conditions affecting yields, time of performing operations, and available days; and because of harvesting operations on certain crops being speeded up to supply a good market, or retarded to avoid a poor one, resulting in marked variations in the need for harvest labor.





